

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A game apparatus which represents a game by displaying a game image in which game an object moves in accordance with a player's operation, comprising:

an operating section for inputting, in accordance with the player's operation, at least acceleration operation input data for accelerating a movement of the object and deceleration operation input data for decelerating a movement of the object;

an acceleration sound storage section in which a series of acceleration sound data including sound data of an accelerated portion generated as a result of the object accelerating from a minimum speed to a maximum speed are stored in continuous address spaces;

a deceleration sound storage section in which a series of deceleration sound data including sound data of a decelerated portion generated as a result of the object decelerating from the maximum speed to the minimum speed are stored in continuous address spaces;

a moving speed calculating section for, based on the acceleration operation input data and the deceleration operation input data input via the operating section, calculating a moving speed of the object in a game space;

a read start address calculating section for selecting, based on operation input data input via the operating section, either one of the acceleration sound data or the deceleration sound data which are stored in the acceleration sound storage section and the deceleration sound storage

section respectively, and for calculating a read start address of selected sound data in accordance with a ratio of a current moving speed of the object in the game space to the maximum speed;

a sound data reading section for sequentially reading selected sound data from the read start address calculated by the read start address calculating section; and

a sound output control section for outputting, as a sound, the sound data read by the sound data reading section, wherein

when the sound data reading section is sequentially reading the acceleration sound data in response to the acceleration operation input data from the operating section or the deceleration sound data in response to the deceleration operation input data from the operating section, if there is an input of the deceleration operation input data from the operating section, or an input of the acceleration operation input data from the operating section, respectively, the read start address calculating section calculates the read start address of the deceleration sound based on the moving speed corresponding to a read address of the acceleration sound data being read by the sound data reading section, or the read start address of the acceleration sound based on the moving speed corresponding to a read address of the deceleration sound data being read by the sound data reading section, respectively, so that the sound data read by the sound data reading section is a waveform containing no discontinuity points.

2. (Previously Presented) The game apparatus according to claim 1, wherein for each change from one to the other between the acceleration operation input data and the deceleration operation input data which is input via the operating section, the read start address calculating

section changes a calculation target at the read start address from one to the other between the acceleration sound data and the deceleration sound data, while the sound data read section sequentially reads, in response to a change of the calculation target of the read start address calculating section, sound data newly targeted for calculation from the read start address, thereby continuously reading different types of sound data before and after the change of the calculation target.

3. (Cancelled)

4. (Cancelled)

5. (Previously Presented) The game apparatus according to claim 1, wherein:

the acceleration sound data stored in the acceleration sound storage section contains at least sound data corresponding to an acceleration range where the object accelerates from the minimum speed to the maximum speed at a constant acceleration rate; and

the deceleration sound data stored in the deceleration sound storage section contains at least sound data corresponding to a deceleration range where the object decelerates from the maximum speed to the minimum speed at a constant deceleration rate.

6. (Previously Presented) The game apparatus according to claim 5, wherein

the acceleration sound data stored in the acceleration sound storage section further contains sound data corresponding to a maximum and constant speed range, where the object moves at the maximum and constant speed, and the sound data corresponding to the maximum and constant speed range is sequential in address to the sound data corresponding to the acceleration range; and

the sound data reading section repeatedly reads the acceleration sound data corresponding to the maximum and constant speed range, if the acceleration operation input data is continuously input from the operating section for a period of a prescribed time or more.

7. (Previously Presented) The game apparatus according to claim 5, wherein the deceleration sound data stored in the deceleration sound storage section further contains sound data corresponding to a minimum and constant speed range, where the object moves at the minimum and constant speed, and the sound data corresponding to a minimum and constant speed range is sequential in address to the sound data corresponding to the deceleration range; and

the sound data reading section repeatedly reads the deceleration sound data corresponding to the minimum and constant speed range, if the deceleration operation input data is continuously input from the operating section for a period of a prescribed time or more.

8. (Previously Presented) The game apparatus according to claim 1, wherein:

the operating section is able to input acceleration operation input data for accelerating the movement of the object at an arbitrary rate of speed in accordance with a degree of operation designated by the player; and

the sound output control section includes an acceleration sound frequency correcting section for correcting a frequency of the acceleration sound data read by the sound data reading section in accordance with a change in the rate of acceleration indicated by the acceleration operation input data.

9. (Previously Presented) The game apparatus according to claim 1, wherein:

the operating section is able to input deceleration operation input data for decelerating the movement of the object at an arbitrary rate of speed in accordance with a degree of operation designated by the player; and

the sound output control section includes a deceleration sound frequency correcting section for correcting a frequency of the deceleration sound data read by the sound data reading section in accordance with a change in the rate of deceleration indicated by the deceleration operation input data.

10. (Cancelled)

11. (Currently Amended) A computer readable storage medium having recorded therein an executable game program causing a computer, which includes an operating section operated by a player, to implement a process for representing a game by displaying a game image in which game an object moves in accordance with the player's operation, the game program causing the computer to implement:

inputting, in accordance with an operation of the operating section, at least acceleration operation input data for accelerating a movement of the object and deceleration operation input data for decelerating a movement of the object;

calculating, based on the acceleration operation input data and the deceleration operation input data input via the operating section, a moving speed of the object in a game space;

selecting, based on operation input data input at the inputting, either one of the object's acceleration sound data including sound data of an accelerated portion generated as a result of the object accelerating from a minimum speed to a maximum speed or deceleration sound data including sound data of a decelerated portion generated as a result of the object decelerating from the maximum speed to the minimum speed, which are sequential to each other and previously stored in respective continuous address spaces, in accordance with a current moving speed of the object in the game space, and calculating a read start address of selected sound data corresponding to a ratio of the current moving speed of the object to the maximum speed;

sequentially reading selected sound data from the calculated read start address; and

outputting, as a sound, the sound data read at the reading of the selected sound data,

wherein

when sequentially reading the acceleration sound data in response to the acceleration operation input data from the operating section or the deceleration sound data in response to the deceleration operation input data from the operating section, if there is an input of the deceleration operation input data from the operating section, or an input of the acceleration operation input data from the operating section, respectively, the read start address of the deceleration sound is calculated based on the moving speed corresponding to a read address of the acceleration sound data, or the read start address of the acceleration sound is calculated based on the moving speed corresponding to a read address of the deceleration sound data, respectively, so that the sound data read is a waveform containing no discontinuity points.

12. (Previously Presented) The storage medium having stored therein a game program according to claim 11, wherein for each change from one to the other between the acceleration operation input data and the deceleration operation input data which is input via the operating section, the calculating of the read start address changes a calculation target at the read start address from one to the other between the acceleration sound data and the deceleration sound data, while the reading of the selected sound data sequentially reads, in response to the changed calculation target, sound data newly targeted for calculation from the read start address, thereby continuously reading different types of sound data before and after the change of the calculation target.

13. (Cancelled)

14. (Cancelled)

15. (Previously Presented) The storage medium having recorded therein a game program according to claim 11, wherein:

the previously stored acceleration sound data contains at least sound data corresponding to an acceleration range where the object accelerates from the minimum speed to the maximum speed at a constant acceleration rate; and

the previously stored deceleration sound data contains at least sound data corresponding to a deceleration range where the object decelerates from the maximum speed to the minimum speed at a constant deceleration rate.

16. (Previously Presented) The storage medium having recorded therein a game program according to claim 15, wherein the previously stored acceleration sound data further contains sound data corresponding to a maximum and constant speed range, where the object moves at the maximum and constant speed, and the sound data corresponding to the maximum and constant speed range is sequential in address to the sound data corresponding to the acceleration range; and

the reading of the selected sound data repeatedly reads the acceleration sound data corresponding to the maximum and constant speed range, if the acceleration operation input data is continuously input at the inputting for a period of a prescribed time or more.

17. (Previously Presented) The storage medium having recorded therein a game program according to claim 15, wherein the previously stored deceleration sound data further contains sound data corresponding to a minimum and constant speed range, where the object moves at the minimum and constant speed, and the sound data corresponding to the minimum and constant speed range is sequential in address to the sound data corresponding to the deceleration range; and

the reading of the selected sound data repeatedly reads the deceleration sound data corresponding to the minimum and constant speed range, if the deceleration operation input data is continuously input at the inputting for a period of a prescribed time or more.

18. (Previously Presented) The storage medium having recorded therein a game program according to claim 11, wherein:

the inputting inputs acceleration operation input data for accelerating the movement of the object at an arbitrary rate of speed in accordance with a degree of operation designated by the player via the operating section; and

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the outputting of the sound output includes correcting a frequency of the acceleration sound data read at the reading of the selected sound data in accordance with a change in the rate of acceleration indicated by the acceleration operation input data.

19. (Previously Presented) The storage medium having recorded therein a game program according to claim 11, wherein:

the inputting inputs deceleration operation input data for decelerating the movement of the object at an arbitrary rate of speed in accordance with a degree of operation designated by the player via the operating section; and

the outputting of the sound output includes correcting a frequency of the deceleration sound data read at the reading of the selected sound data in accordance with a change in the rate of deceleration indicated by the deceleration operation input data.

20. (Cancelled)

21. (Currently Amended) A computer implemented method for generating a sound of movement of a game object in a game space, in accordance with an action of the object, comprising:

recording sounds of a tangible object accelerating from a minimum velocity to a maximum velocity and decelerating from the maximum velocity to the minimum velocity over a period of time,

storing the sounds as data on a recording medium,

dividing the data into segments designated by a plurality of states corresponding to respective velocities of the object including where a first state corresponds to velocity A and a second state corresponds to velocity B,

calculating a current velocity of the game object upon receipt of a signal representing an acceleration or deceleration of the game object from a game controller,

calculating a read start address of sound data in accordance with a ratio of the current velocity and the maximum velocity,

reading the data associated with the calculated read start address ,

converting the data associated with the current velocity to a sound, and

outputting the sound, wherein

when sequentially reading the acceleration sound data in response to acceleration operation input data from the game controller or the deceleration sound data in response to deceleration operation input data from the game controller, if there is an input of the deceleration operation input data from the game controller, or an input of the acceleration operation input data from the game controller, respectively, the read start address of the deceleration sound is calculated based on the moving speed corresponding to a read address of the acceleration sound

data being read, or the read start address of the acceleration sound is calculated based on the moving speed corresponding to a read address of the deceleration sound data being read, respectively, so that the sound data read is a waveform containing no discontinuity points.

22. (Previously Presented) The method according to claim 21, wherein velocity A equals velocity B.

23. (Previously Presented) The method according to claim 21, wherein the converting the data comprises factoring in a frequency correction corresponding to a change in acceleration rate.

24. (Previously Presented) The method according to claim 21, further comprising continuing to read and convert the data and output the sounds associated with the states ranging from the state corresponding to the current velocity of the game object to the state corresponding to velocity B.